



Technical resources

304 stainless steel lined with zirconia mill jar

<https://www.tencanballmills.com/en/products/grinding-series/planetary-ball-mill-jar/304-stainless-steel-lined-with-zirconia-mill-jar.html>

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Model:

304 stainless steel mill jar lined with zirconia offers superior wear resistance and contamination-free grinding for high-purity materials. Ideal for planetary ball mills in labs and R&D.

Technical specifications

Zirconia density	5.9 - 6.0 g/cm ³
Typical volume	15ml~500ml
Thermal expansion coefficient	11 ± 0.2 40–400°C

These specifications describe the series. Confirm the selected model, power supply and configuration before ordering.



The stainless steel lined zirconia tank is a high-performance grinding vessel whose main structure

provides solid support for the stainless steel shell and is lined with high-purity zirconia ceramics. This design cleverly combines the structural strength of metal with the chemical inertness of ceramic.

It is specially designed for grinding under inert gas protection or vacuum environment. It can effectively isolate the material from contact with oxygen and prevent dangerous situations such as oxidation of the material or explosion in the air. It also controls the dryness of the material and improves the grinding fineness. In addition, it can protect the material from iron or other inorganic contamination, and is especially suitable for processing materials with extremely high purity requirements.





Stainless steel lined zirconia tanks have a wide range of applications and mainly serve the following fields:

- **Handling of air-sensitive materials:** For materials that are unstable in the air, easily oxidized, or react with water vapor, loading and sampling can be completed in the glove box, and then sealed for grinding.
- **Preparation of high-purity materials:** In the fields of new energy materials (such as battery positive and negative electrode materials), high-end ceramic powders, electronic materials, etc., ensure that the materials are free of metal contamination during the grinding process and ensure product purity and performance.
- **Scientific research and laboratory research:** It is an ideal accessory for planetary ball mills and is widely used in research and development work in laboratories such as materials science and chemistry.

Technical parameters

Technical parameters	Detailed description
structural materials	Shell: stainless steel (common type 304); Lining: high purity zirconia ceramic pure Spend > 99.99
Zirconia density	About 5.9 - 6.0 g/cm ³
Zirconia hardness	Mohs hardness > 8.5, Vickers hardness HV ≥ 1200
Typical volume	Provide a variety of specifications, such as 15ml, 50ml, 100ml, 250ml, 500ml, etc.
Sealing	Designed with silicone sealing rings, it has strong sealing performance and supports vacuum and atmosphere-protected grinding.
thermal expansion coefficient	11 ± 0.2 40 – 400 °C

Choose stainless steel lined zirconia tanks and you will gain the following advantages:

- **Excellent wear resistance and long life:** The zirconia lining has high hardness, good wear resistance and long service life, which can significantly reduce the cost of consumables in long-term use.
- **Excellent smoothness and non-sticking:** The inner wall is made of molds with extremely high smoothness, which can effectively prevent the material from sticking to the wall during the grinding process, making it easy to clean and reducing the loss of material residue.
- **Optimized bottom design:** The bottom adopts a large R-angle design, which helps to reduce the sinking of materials during the grinding process, promotes the full flow and mixing of

materials and grinding media, and improves grinding efficiency and uniformity.

- Extensive equipment compatibility: It can be customized according to needs and is compatible with supporting planetary ball mills.

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Before operation, review the selected model's instructions and the material requirements.